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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,649	11/24/2003	Kevin J. Lee	42P16018	4663

7590 11/16/2004
Jan Carol Little-Washington
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

EXAMINER

RAO, SHRINIVAS H

ART UNIT PAPER NUMBER

2814

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,649

Applicant(s)

LEE, KEVIN J.

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 5-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

The Application as currently filed does not claim priority from previously filed patent application. Therefore, currently the earliest available filing date is the U.S. filing date namely November 24, 2003.

Drawings

The corrected drawings were received on April 29, 2004 these drawings are accepted by the drafts person.

Information Disclosure Statement

To date no IDS have been filed in this case.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-4 are, drawn to an apparatus, classified in class 257, subclass 686 +.
- II. Claims 5-15 are, drawn to a method of laminating a plurality of semiconductor layers, classified in class 438, subclass 624 +.
- III. Claims 16-18 are, drawn to a system having a transreceiver, die stack, CPU, a memory and an interposer, classified in class 719, subclass 310+
- IV. Claims 19-29 are, drawn to article of manufacture, classified in class 718, subclass 106 +.

Inventions Gr. I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)).

In this case the apparatus as claimed can be used to practice another and materially different process, namely one wherein the interposer can be made of only a single layer and the steps of removing bottom release layer and top release layer (recited in Gr. II claims 5-15) are not needed.

Inventions Gr. III and Gr. IV are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)).

In this case the product as claimed can be made by another and materially different apparatus namely having a transmitter that transmits signal over land lines, i.e. hard wire (instead of the wireless signal recited in claims 16-18).

Groups III . and IV are different from Gr. I because herein (Gr. I) the metal vias in the interposer need not be aligned to the CPU metal pattern.(Gr. III) or aligning the metal vias of the interposer with the first wafer metalized pattern.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, III or IV, restriction for examination purposes as indicated is proper.

During a telephone conversation with Ms. Jan Little Washington (41,181) on 11/09/04 a provisional election was made without traverse to prosecute the invention of group I, claims 1-4.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 5-29 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. (U.S. Patent No. 5,089,880, herein after Meyer) in view of DiStefano et al. (U.S. Patent No. 5,558,928, herein after DiStefano).

With respect to claim 1 Meyer describes an apparatus, comprising a first wafer having a first metal pattern disposed on a top surface; (Meyer, fig. 1 wafer 24 having

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metal pattern 36, col. 6 lines 1-2) a second wafer having a second metal pattern disposed on a top surface; (Meyer fig. 2 , wafer 22 having second metal pattern 36, col. 5 lines 67-68) and an interposer disposed between the top surface of the first wafer and the top surface of the second wafer, (Meyer figs. 4 to 6, # 26,62, col.6 lines 4-6,10-13, col. 8 lines 33-35) the interposer having a pattern of metal vias disposed (in thermoplastic) (Meyer col. 6 line 7).

Meyer does not specifically describe its thermosetting plastic as being cured .

However DiStefano, a patent from the same filed of endeavor, describes in col.1 lines 65-67 and col.2 lines 1 to 9 describes cured thermosetting plastic to form an unitary mass and cause the flowable dielectric material to flow and conform to the major surface of the circuit panels the pattern of metal vias being aligned with and electrically coupled to the first metal pattern and the second metal pattern and to cross link the material of the thermosetting plastic .

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include DiStefano's cured thermosetting plastic instead of Meyer's unspecified thermosetting plastic . The motivation to undertake the above combination is to form an unitary mass and cause the flowable dielectric material to flow and conform to the major surface of the circuit panels the pattern of metal vias being aligned with and electrically coupled to the first metal pattern and the second metal pattern .(DiStefano col. 2 lines 4-5 and col. Col. 4 line 65 to col. 5 line 9) and to cross link the material of the thermosetting plastic .


With respect to claim 2 Meyer describes the apparatus of claim 1, wherein the interposer further comprises of the dielectric film disposed in the cured thermosetting plastic. (Meyer col.8 lines 45-48).

With respect to claim 3 Meyer describes the apparatus of claim 1, wherein the cured thermosetting plastic comprises a polyimide material. (Meyer col. 8 line 46).

With respect to claim 4 Meyer describes the apparatus of claim 3, wherein the cured thermosetting plastic comprises an epoxy material.(DiStefano col. 8 lines 49-51).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272-1728. The examiner can normally be reached on Monday- Friday from approximately 7:00 a.m. to 5:30 p.m.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. The Group facsimile number is (703) 308-7724.



Steven H. Rao

Patent Examiner

November 10, 2004